8) Please delete the first full paragraph on page 30, starting from line 7 and ending with line 33 with the following replacement paragraph:

In yet another aspect, the invention features a method for synthesizing a compound of claim 1, comprising the steps of:

(a) reacting a first reactant of formula (V) with a second reactant, where X_1 and X_1' are independently selected from the group consisting of hydrogen, $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, $-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH(R_6)-CH_2(R_7)$, $-O-(CH_2)_m$–cholesterol, $-O-(CH_2)_n-N(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N(R_9)_3$, where R_6, R_7, R_8, and R_9 are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5 and; and where X_2 and X_3 are independently selected from the group consisting of hydrogen and a protecting group, and X_4, X_4', X_5, X_5', X_6, and X_6' are independently selected from the group consisting of hydrogen, –OH, and –O–alkyl; where the second reactant is selected from the group consisting of $ClCH_3$, Cl–alkyl, $Cl-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $Cl-CH_2-CH(OR_6)-CH_2(OR_7)$, $Cl-CH_2-CH(R_6)-CH_2(R_7)$, $Cl-(CH_2)_m$–cholesterol, and $Cl-(CH_2)_n-N(R_8)_3$, where R_6, R_7, and R_8 are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; (b) reacting the product of step (a) with a reducing agent and a catalyst; and (c) purifying the compound of the invention.

IN THE CLAIMS

Please add new claims 41-86 as follows:

41. (New) A composition for delivery of a polynucleotide into one or more cells, comprising:

(a) a compound comprising a glycosyl moiety having a cationic nitrogen-based substituent linked to a carbon atom within said glycosyl moiety, wherein said nitrogen-based substituent is selected from the group consisting of $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N^+(R_{10})_3$, and $-NH-C(N^+H_2)-NH_2$, and wherein substituents linked to other carbon atoms within said glycosyl moiety independently selected from the group consisting of hydrogen, –alkyl, –O–alkyl, –O–C(O)–alkyl, $-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH(R_6)-CH_2(R_7)$, $-O-(CH_2)_m$–cholesterol, polyethylene glycol, $-O-(CH_2)_n-N^+(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N^+(R_9)_3$, and $-(CH_2)-OR_{10}$ where R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5, provided that at least one substituent linked to the glycosyl moiety is lipophilic; and

(b) said polynucleotide.

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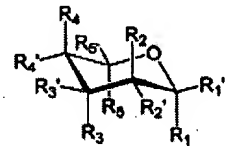
42. (New) A composition for delivering one or more polynucleotides into one or more cells, comprising:

(a) a compound having a structure set forth in formula (I):



(I)

wherein R_1 and R_1' are independently selected from the group consisting of hydrogen, –OH, $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, $-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH(R_6)-CH_2(R_7)$, $-O-(CH_2)_m$–cholesterol, $-O-(CH_2)_n-N^+(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N^+(R_9)_3$, and $-(CH_2)-OR_{10}$, wherein R_6, R_7, R_8, R_9 and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and wherein m is selected from the group

consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5;

wherein R_2 and R_2' are independently selected from the group consisting of hydrogen, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N^+(R_{11})_3$, and $-NH-C(N^+H_2)-NH_2$, wherein R_{11} is selected from the group consisting of hydrogen, methyl, and alkyl; and

wherein R_3, R_3', R_4, R_4', R_5, and R_5' are independently selected from the group consisting of hydrogen, $-OH$, $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, $-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH(R_6)-CH_2(R_7)$, $-O-(CH_2)_m$–cholesterol, $-O-(CH_2)_n-N^+(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N^+(R_9)_3$, and $-(CH_2)-OR_{10}$, wherein R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5, provided that at least one of R_1, R_1', R_3, R_3', R_4, R_4', R_5, and R_5' is lipophilic; and

(b) said polynucleotides.

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43. (New) The composition of claim 42, wherein R_2 and R_2' are independently selected from the group consisting of $-NH_2$, $-N^+(CH_3)_3$, and $-NH-C(N^+H_2)-NH_2$.

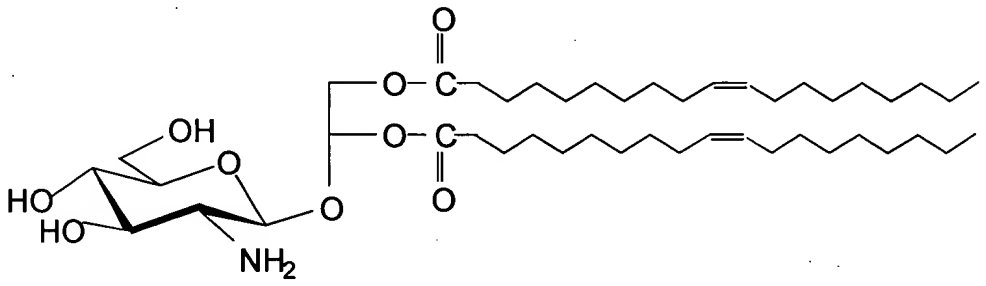
44. (New) The composition of claim 43, wherein said R_3, R_3', R_4, R_4', R_5, and R_5' are independently selected from the group consisting of hydrogen, -OH, -O-C(O)-alkyl, -O-alkyl, and -alkyl, $-(CH_2)-OH$.

45. (New) The composition of claim 44, wherein said R_1 and R_1' are independently selected from the group consisting of $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, $-O-CH_2-CH(alkyl)-CH_2(alkyl)$, $-O-CH_2-CH(O-alkyl)-CH_2(O-alkyl)$, $-O-CH_2-CH(O-C(O)-alkyl)-CH_2(O-C(O)-alkyl)$, $-O-(CH_2)_m$–cholesterol, $-O-(CH_2)_n-NH_2$, and $-O-(CH_2)_n-N^+(CH_3)_3$, wherein m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and wherein n is selected from the group consisting of 1, 2, 3, 4, and 5.

46. (New) The composition of claim 45, wherein said alkyl moiety is a straight chain hydrocarbon moiety having 14, 16, or 18 carbon atoms and 0, 1, 2, or 3 unsaturations.

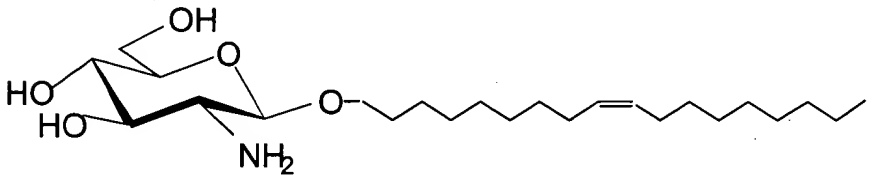
47. (New) The composition of claim 46, wherein said compound has the structure set forth in formula (II):

(II)



48. (New) The composition of claim 46, wherein said compound has the structure set forth in formula (III):

(III)



B9 cont'd

49. (New) The composition of claim 47, wherein said compound has the structure set forth in formula (IV):

(IV)

50. (New) The composition of claim 41, wherein said polynucleotide is selected from the group consisting of a DNA molecule, a RNA molecule, and a polynucleotide analogue molecule.

51. (New) The composition of claim 50, wherein said DNA molecule is a plasmid molecule comprising at least one element for polypeptide expression in one or more eukaryotic cells.

52. (New) The composition of claim 51, wherein said plasmid molecule further comprises a gene encoding IL-2.

53. (New) The composition of claim 51, further comprising at least one co-lipid.

54. (New) The composition of claim 53, wherein said co-lipid is DOPE.

55. (New) The composition of claim 53, wherein said co-lipid is cholesterol.

56. (New) The composition of claim 42, further comprising a cryoprotectant.

57. (New) The composition of claim 56, wherein said cryoprotectant is PVP.

58. (New) The composition of claim 42, wherein said composition is capable of forming liposomes.

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59. (New) The composition of claim 42 having an effective diameter between 100 nanometers and 300 nanometers.

60. (New) The composition of claim 42 having a -/+ charge ratio selected from the group consisting of 1:0.5, 1:1, 1:2, 1:3, 1:4, 1:5, 1:6, and 1:9.

61. (New) A method for delivering polynucleotides to cells of a mammal, comprising the step of administering a composition of any one of claims 41-49, 50-60 to said cells.

62. (New) The method of claim 61, wherein said composition is administered to said cells *in vitro*.

63. (New) The method of claim 61, wherein said composition is administered to said cells *in vivo*.

64. (New) The method of claim 61, wherein said administration results in IL-2 expression in said cells.

65. (New) The method of claim 61, wherein said composition is administered by a technique selected from the group consisting of direct injection to a tissue, parenteral injection, intravenous injection, oral administration, and administration by inhalation.

66. (New) A composition for delivery of polynucleotides to cells comprising a polynucleotide in non-covalent association with a cationic hydrophobic glycosylamine derivative comprising a glycosyl moiety having at least one cationic nitrogen-based substituent and having at least one lipophilic substituent.

67. (New) The composition of claim 66, wherein the cationic nitrogen based substituent is a $-NH_2$, and wherein the hydrophobic moiety is a C_9 to C_{24} saturated or unsaturated acyl or alkyl moiety.

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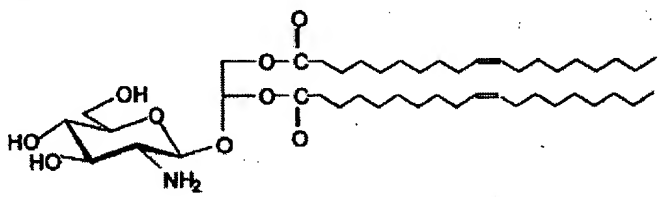
68. (New) A composition for delivery of polynucleotides to cells comprising a polynucleotide in non-covalent association with a cationic hydrophobic glycosylamine derivative comprising a cationic amino sugar having at least one lipophilic moiety.

69. (New) The composition of claim 67, wherein the alkyl moiety is a straight chain hydrocarbon having 14, 16, or 18 carbon atoms and 0, 1, 2 or 3 saturations.

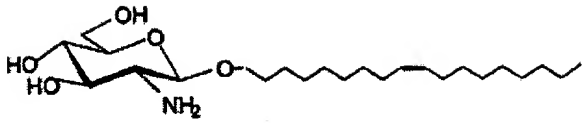
70. (New) The composition of claims 66 and 68, wherein the cationic hydrophobic glycosylamine derivative has the structure set forth in formula (II):

(II)



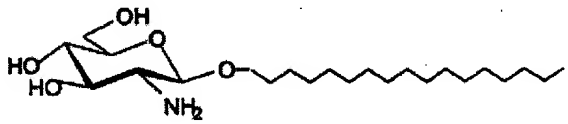
71. (New) The composition of claims 66 and 68, wherein the cationic hydrophobic glycosylamine derivative has the structure set forth in formula (III):

(III)



72. (New) The composition of claims 66 and 68 wherein the cationic hydrophobic glycosylamine derivative has the structure set forth in formula (IV):

(IV)



73. (New) The composition of claim 66, wherein the polynucleotide is selected from the group consisting of a DNA molecule, a RNA molecule, and a polynucleotide analogue molecule.

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74. (New) The composition of claim 73, wherein the DNA molecule is a plasmid molecule comprising at least one element for polyopeptide expression in one or more eukaryotic cells.

75. (New) The composition of claim 74, wherein the plasmid molecule further comprises a gene encoding IL-2.

76. (New) The composition of claim 66, further comprising at least one co-lipid.

77. (New) The composition of claim 76, wherein said co-lipid is DOPE.

78. (New) The composition of claim 76, wherein said co-lipid is cholesterol.

79. (New) The composition of claim 66, further comprising a cryoprotectant.

80. (New) The composition of claim 66, wherein the cationic hydrophobic glycosylamine derivative is capable of forming liposomes.

81. (New) The composition of claim 66, wherein the polynucleotide in non-covalent association with the cationic hydrophobic glycosylamine derivative together form a complex having an effective diameter between 100 nanometers and 300 nanometers.

82. (New) The composition of claim 66 having a – / + charge ratio selected from the group consisting of 1:0.5, 1:1, 1:2, 1:3, 1:4, 1:5, 1:6, and 1:9.

83. (New) A method for delivering polynucleotides to cells of a mammal, comprising the step of administering a composition of any one of claims 66-81 to the cells.

84. (New) The method of claim 83, wherein said composition is administered to the cells in vitro.

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85. (New) The method of claim 83, wherein said composition is administered to the cells in vivo.

86. (New) The method of claim 83, wherein said composition is administered by a technique selected from the group consisting of direct injection to a tissue, parenteral injection, intravenous injection, oral administration, and administration by inhalation.

Respectfully submitted,

LYON & LYON LLP

Dated: 4/26/01

By: _____

David A. Randall
Reg. No. 37,217

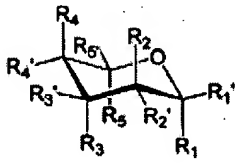
VERSION WITH MARK-UP AMENDMENTS

1) Please delete the third full paragraph on page 5, starting from line 27 and ending with line 10 of page 6 with the following replacement paragraph:

In a first aspect, the invention features a compound comprising a glycosyl moiety having a nitrogen-based substituent linked to a carbon atom within the glycosyl moiety, where the nitrogen-based substituent is selected from the group consisting of $-NH_2$, $-N^+(CH_3)_3$, $[-(CH_2)_n-N(R_{10})_3]$ $\underline{-(CH_2)_n-N^+(R_{10})_3}$, and $-NH-C(N^+H_2)-NH_2$, and where substituents linked to other carbon atoms within the glycosyl moiety are selected from the group consisting of hydrogen, –alkyl, –O–alkyl, –O–C(O)–alkyl, $[-O-CH_2-CH_2(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH_2(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH_2(R_6)-CH_2(R_7),]$ $\underline{-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)}$, $\underline{-O-CH_2-CH(OR_6)-CH_2(OR_7)}$, $\underline{-O-CH_2-CH(R_6)-CH_2(R_7)}$, $-O-(CH_2)_m$–cholesterol, polyethylene glycol, $[-O-(CH_2)_n-N(R_8)_3]$ $\underline{-O-(CH_2)_n-N^+(R_8)_3}$, $-NH_2$, $-N^+(CH_3)_3$, $[-(CH_2)_n-N(R_9)_3]$ $\underline{-(CH_2)_n-N^+(R_9)_3}$, $-(CH_2)-OR_{10}$ where R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5.

2) Please delete the second full paragraph on page 8, starting from line 8 and ending with line 12 of page 9 with the following replacement paragraph:

In another aspect, the invention features a compound having a structure set forth in formula I:



(I)

where (a) R_1 and R_1' are independently selected from the group consisting of hydrogen, –OH, $–OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [$–O–CH_2–CH_2(O–C(O)–R_6)–CH_2(O–C(O)–R_7)$, $–O–CH_2–CH_2(OR_6)–CH_2(OR_7)$, $–O–CH_2–CH_2(R_6)–CH_2(R_7)$,] $–O–CH_2–CH(O–C(O)–R_6)–CH_2(O–C(O)–R_7)$, $–O–CH_2–CH(OR_6)–CH_2(OR_7)$, $–O–CH_2–CH(R_6)–CH_2(R_7)$, $–O–(CH_2)_m$–cholesterol, polyethylene glycol, [$–O–(CH_2)_n–N(R_8)_3$] $–O–(CH_2)_n–N^+(R_8)_3$, $–NH_2$, $–N^+(CH_3)_3$, and [$–(CH_2)_n–N(R_9)_3$] $–(CH_2)_n–N^+(R_9)_3$, where R_6, R_7, R_8, and R_9 are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; (b) R_2 and R_2 are independently selected from the group consisting $–NH_2$, $–N^+(CH_3)_3$, [$–(CH_2)_n–N(R_{11})_3$] $–(CH_2)_n–N^+(R_{11})_3$, and $–NH–C(N^+H_2)–NH_2$, wherein R_{11} is selected from the group consisting of hydrogen, methyl, and alkyl; and (c) R_3, R_3', R_4, R_4', R_5, and R_5' are independently selected from the group consisting of hydrogen, –OH, $–OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [$–O–CH_2–CH_2(O–C(O)–R_6)–CH_2(O–C(O)–R_7)$, $–O–CH_2–CH_2(OR_6)–CH_2(OR_7)$, $–O–CH_2–CH_2(R_6)–CH_2(R_7)$] $–O–CH_2–CH(O–C(O)–R_6)–CH_2(O–C(O)–R_7)$, $–O–CH_2–CH(OR_6)–CH_2(OR_7)$, $–O–CH_2–CH(R_6)–CH_2(R_7)$, $–O–(CH_2)_m$–cholesterol, polyethylene glycol, [$–O–(CH_2)_n–N(R_8)_3$]

$-O-(CH_2)_n-N^+(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, and $[-(CH_2)_n-N(R_9)_3]$ $-(CH_2)_n-N^+(R_9)_3$, where R_6, R_7, R_8, and R_9, are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5, provided that R_5' is not $-CH_2-O-C(O)-(CH_2)_{14}CH_3$ when R_3' and R_4' are –OH and R_2' is $-NH_2$ and R_1' is $-OCH_3$, and provided that R_5' is not $-CH_2-O-C(O)-(CH_2)_pCH_3$, where p is selected from the group consisting of 10, 12, 14, or 16, when R_3' is identical to R_5' and R_4' is –OH and R_2' is $-NH_2$ and R_1' is $-OCH_3$.

3) Please delete the fourth full paragraph on page 12, starting from line 21 and ending with line 30 with the following replacement paragraph:

In yet another preferred embodiment, the invention relates to the compound of formula (I), where R_1 and R_1' are independently selected from the group consisting of hydrogen, $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [–O–CH_2–CH_2(alkyl)–CH_2(alkyl), –O–CH_2–CH_2(O–alkyl)–CH_2(O–alkyl), –O–CH_2–CH_2(O–C(O)–alkyl)–CH_2(O–C(O)–alkyl)] –O–CH_2–CH(alkyl)–CH_2(alkyl), –O–CH_2–CH(O–alkyl)–CH_2(O–alkyl), –O–CH_2–CH(O–C(O)–alkyl)–CH_2(O–C(O)–alkyl), –O–$(CH_2)_m$–cholesterol, polyethylene glycol, –O–$(CH_2)_n$–NH_2, and –O–$(CH_2)_n$–$N^+(CH_3)_3$, where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5.

4) Please delete the third full paragraph on page 16, starting from line 16 and ending with page 17, line 5, with the following replacement paragraph:

Thus in another aspect, the invention features a compound for delivering one or more macromolecules into cells, comprising: (a) a compound comprising a glycosyl moiety having a nitrogen-based substituent linked to a carbon atom within the glycosyl moiety, where the nitrogen-based substituent is selected from the group consisting of $-NH_2$, $-N^+(CH_3)_3$, [$-(CH_2)_n-N(R_{10})_3$] $-(CH_2)_n-N^+(R_{10})_3$, and –NH–$C(N^+H_2)$–NH_2, and where substituents linked to other carbon atoms within the glycosyl moiety are selected from the group consisting of hydrogen, –alkyl, –O–alkyl, –O–C(O)–alkyl, [–O–CH_2–CH_2(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH_2(OR_6)–CH_2(OR_7), –O–CH_2–CH_2(R_6)–CH_2(R_7)] –O–CH_2–CH(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH(OR_6)–CH_2(OR_7),

$-O-CH_2-CH(R_6)-CH_2(R_7)$, $-O-(CH_2)_m-$cholesterol, polyethylene glycol, $[-O-(CH_2)_n-N(R_8)_3]$ $-O-(CH_2)_n-N^+(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $[-(CH_2)_n-N(R_9)_3]$ $-(CH_2)_n-N^+(R_9)_3$, $-(CH_2)-OR_{10}$ where R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; and (b) the macromolecule or macromolecules.

5) Please delete the first full paragraph on page 17, starting from line 6 and ending with line 33 with the following replacement paragraph:

In another aspect, the invention features a composition for delivering one or more macromolecules into cells, comprising: (a) a compound having a structure set forth in formula (I), where (i) R_1 and R_1' are independently selected from the group consisting of hydrogen, –OH, $–OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [–O–CH_2–CH_2(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH_2(OR_6)–CH_2(OR_7), –O–CH_2–CH_2(R_6)–CH_2(R_7)] –O–CH_2–CH(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH(OR_6)–CH_2(OR_7), –O–CH_2–CH(R_6)–CH_2(R_7), –O–$(CH_2)_m$–cholesterol, [–O–$(CH_2)_n$–N(R_8)$_3$] –O–$(CH_2)_n$–N^+(R_8)$_3$, $–NH_2$, $–N^+(CH_3)_3$, [–(CH_2)–N(R_9)$_3$] –(CH_2)–N^+(R_9)$_3$, and –(CH_2)–OR_{10}, where R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; (ii) R_2 and R_2' are independently selected from the group consisting of hydrogen, $–NH_2$, $–N^+(CH_3)_3$, [–$(CH_2)_n$–N(R_{10})$_3$] –$(CH_2)_n$–N^+(R_{10})$_3$, and –NH–C(N^+H_2)–NH_2, wherein R_{10} is selected from the group consisting of hydrogen, methyl, and alkyl; and (iii) R_3, R_3, R_4, R_4', R_5, and R_5' are independently selected from the group consisting of hydrogen, –OH, $–OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [–O–CH_2–CH_2(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH_2(OR_6)–CH_2(OR_7), –O–CH_2–CH_2(R_6)–CH_2(R_7)] –O–CH_2–CH(O–C(O)–R_6)–CH_2(O–C(O)–R_7), –O–CH_2–CH(OR_6)–CH_2(OR_7), –O–CH_2–CH(R_6)–CH_2(R_7), –O–$(CH_2)_m$–cholesterol, [–O–$(CH_2)_n$–N(R_8)$_3$] –O–$(CH_2)_n$–N^+(R_8)$_3$, $–NH_2$, $–N^+(CH_3)_3$, [–$(CH_2)_n$–N(R_9)$_3$] –$(CH_2)_n$–N^+(R_9)$_3$, and –(CH_2)–OR_{10}, where R_6, R_7, R_8, R_9, and R_{10} are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4,

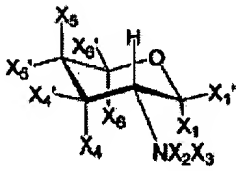
and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; and (b) the macromolecule or macromolecules.

6) Please delete the third full paragraph on page 20, starting from line 12 and ending with line 24 with the following replacement paragraph:

In yet another preferred embodiment, the invention relates to the composition, where R_1 and R_1' are independently selected from the group consisting of $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [–O–CH_2–CH_2(alkyl)–CH_2(alkyl), –O–CH_2–CH_2(O–alkyl)–CH_2(O–alkyl), –O–CH_2–CH_2(O–C(O)–alkyl)–CH_2(O–C(O)–alkyl)] –O–CH_2–CH(alkyl)–CH_2(alkyl), –O–CH_2–CH(O–alkyl)–CH_2(O–alkyl), –O–CH_2–CH(O–C(O)–alkyl)–CH_2(O–C(O)–alkyl), –O–$(CH_2)_m$–cholesterol, –O–$(CH_2)_n$–NH_2, and –O–$(CH_2)_n$–$N^+(CH_3)_3$, where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5. In other preferred embodiments, the invention relates to the composition, where the alkyl moiety is a straight chain hydrocarbon moiety having 14, 16, or 18 carbon atoms and 0, 1, 2, or 3 unsaturations.

7) Please delete the third full paragraph on page 28, starting from line 12 and ending with page 29, line 6 with the following replacement paragraph:

In yet another aspect, the invention features a method for synthesizing a compound of the invention, comprising the steps of: (a) reacting a first reactant of formula (V):



V

With a second reactant, where X_1 and X_1' are independently selected from the group consisting of hydrogen, halogen atom, and an activatable moiety: X_2 and X_3 are independently selected from the group consisting of a protecting moiety, hydrogen, halogen, or any activatable moiety; and where X_4, X_4', X_5, X_5', X_6, and X_6' are independently selected from the group consisting of hydrogen, –O–acetyl, –OH, $-CH_2-O-$acetyl, $-CH_2-OH$, and –O–alkyl; where the second reactant is selected from the group consisting of $HOCH_3$, HO–alkyl, HO–C(O)–alkyl, [$HO-CH_2-CH_2(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $HO-CH_2-CH_2(OR_6)-CH_2(OR_7)$, $HO-CH_2-CH_2(R_6)-CH_2(R_7)$] $HO-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $HO-CH_2-CH(OR_6)-CH_2(OR_7)$, $HO-CH_2-CH(R_6)-CH_2(R_7)$, $HO-(CH_2)_m$–cholesterol, $HO-(CH_2)_n-N(R_8)_3$, where R_6, R_7, and R_8 [and R_9] are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; (b) reacting the product of step (a) with a reducing agent; and (c) purifying the compound of the invention.

8) Please delete the first full paragraph on page 30, starting from line 7 and ending with line 33 with the following replacement paragraph:

In yet another aspect, the invention features a method for synthesizing a compound of claim 1, comprising the steps of:

(a) reacting a first reactant of formula (V) with a second reactant, where X_1 and X_1' are independently selected from the group consisting of hydrogen, $-OCH_3$, –alkyl, –O–alkyl, –O–C(O)–alkyl, [$-O-CH_2-CH_2(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH_2(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH_2(R_6)-CH_2(R_7)$] $-O-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $-O-CH_2-CH(OR_6)-CH_2(OR_7)$, $-O-CH_2-CH(R_6)-CH_2(R_7)$, –O–$(CH_2)_m$–cholesterol, $-O-(CH_2)_n-N(R_8)_3$, $-NH_2$, $-N^+(CH_3)_3$, $-(CH_2)_n-N(R_9)_3$, where R_6, R_7, R_8, and R_9 are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5 and; and where X_2 and X_3 are independently selected from the group consisting of hydrogen and a protecting group, and X_4, X_4', X_5, X_5', X_6, and X_6' are independently selected from the group consisting of hydrogen, –OH, and –O–alkyl; where the second reactant is selected from the group consisting of $ClCH_3$, Cl–alkyl, [$Cl-CH_2-CH_2(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $Cl-CH_2-CH_2(OR_6)-CH_2(OR_7)$, $Cl-CH_2-CH_2(R_6)-CH_2(R_7)$] $Cl-CH_2-CH(O-C(O)-R_6)-CH_2(O-C(O)-R_7)$, $Cl-CH_2-CH(OR_6)-CH_2(OR_7)$, $Cl-CH_2-CH(R_6)-CH_2(R_7)$, Cl–$(CH_2)_m$–cholesterol, and $Cl-(CH_2)_n-N(R_8)_3$, where R_6, R_7, and R_8 [, and R_9] are independently selected from the group consisting of hydrogen, methyl, and alkyl, and where m is selected from the group consisting of 0, 1, 2, 3, 4, and 5, and where n is selected from the group consisting of 1, 2, 3, 4, and 5; (b) reacting the product of step (a) with a reducing agent and a catalyst; and (c) purifying the compound of the invention.